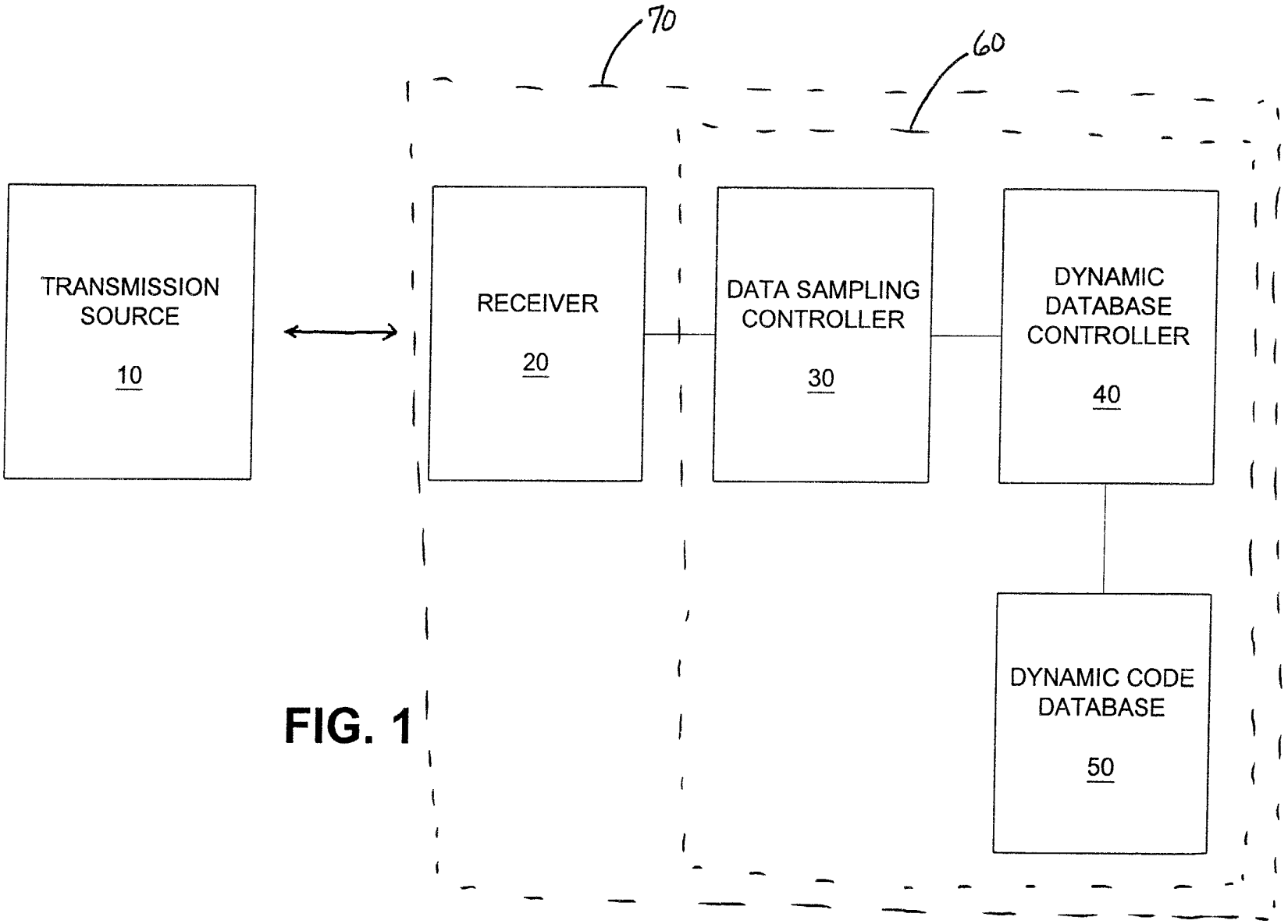
70
60
TRANSMISSION SOURCE
10
RECEIVER
20
DATA SAMPLING CONTROLLER
30
DYNAMIC DATABASE CONTROLLER
40
DYNAMIC CODE DATABASE
50

FIG. 1

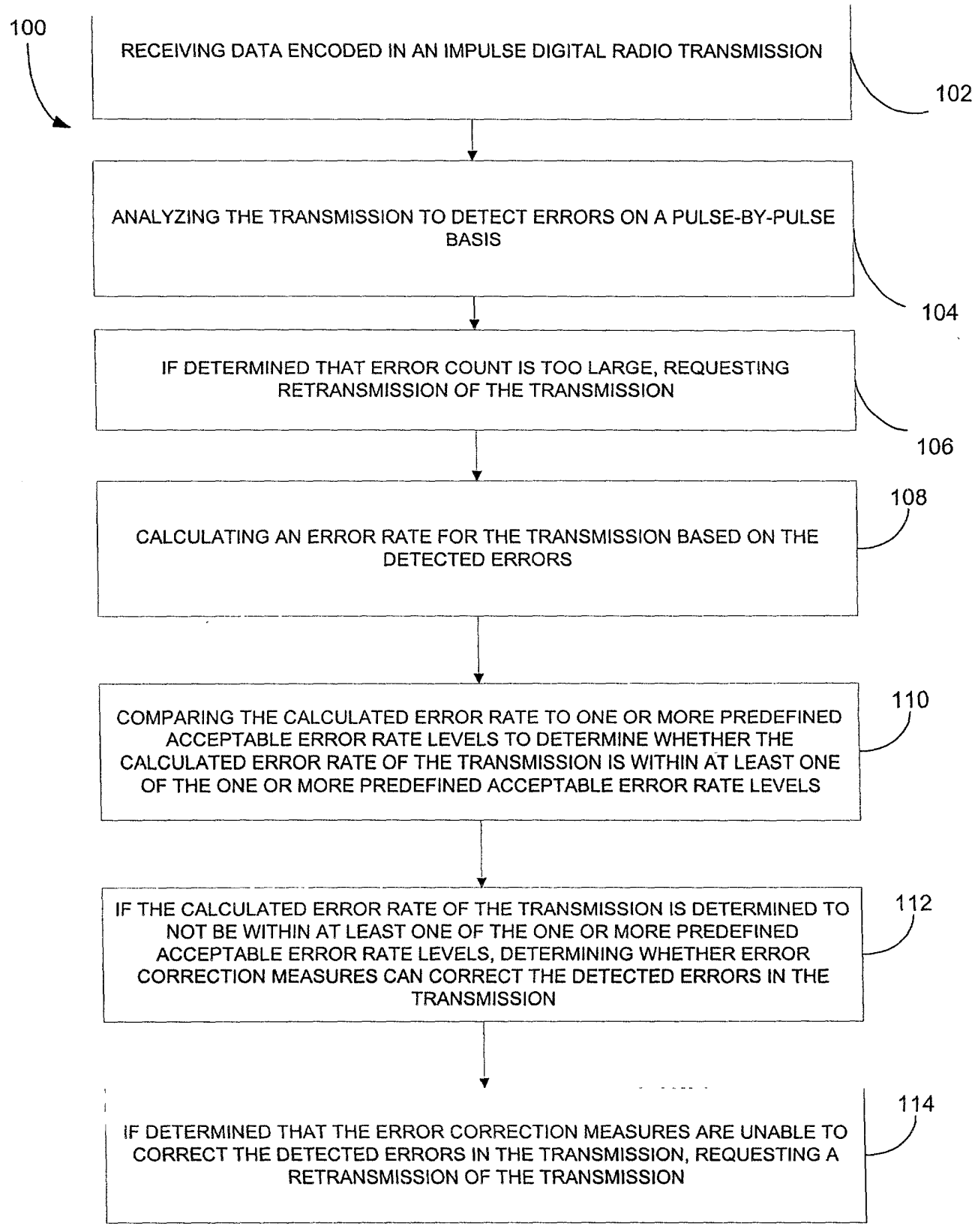
100
RECEIVING DATA ENCODED IN AN IMPULSE DIGITAL RADIO TRANSMISSION
102
ANALYZING THE TRANSMISSION TO DETECT ERRORS ON A PULSE-BY-PULSE BASIS
104
IF DETERMINED THAT ERROR COUNT IS TOO LARGE, REQUESTING RETRANSMISSION OF THE TRANSMISSION
106
CALCULATING AN ERROR RATE FOR THE TRANSMISSION BASED ON THE DETECTED ERRORS
108
COMPARING THE CALCULATED ERROR RATE TO ONE OR MORE PREDEFINED ACCEPTABLE ERROR RATE LEVELS TO DETERMINE WHETHER THE CALCULATED ERROR RATE OF THE TRANSMISSION IS WITHIN AT LEAST ONE OF THE ONE OR MORE PREDEFINED ACCEPTABLE ERROR RATE LEVELS
110
IF THE CALCULATED ERROR RATE OF THE TRANSMISSION IS DETERMINED TO NOT BE WITHIN AT LEAST ONE OF THE ONE OR MORE PREDEFINED ACCEPTABLE ERROR RATE LEVELS, DETERMINING WHETHER ERROR CORRECTION MEASURES CAN CORRECT THE DETECTED ERRORS IN THE TRANSMISSION
112
IF DETERMINED THAT THE ERROR CORRECTION MEASURES ARE UNABLE TO CORRECT THE DETECTED ERRORS IN THE TRANSMISSION, REQUESTING A RETRANSMISSION OF THE TRANSMISSION
114

FIG. 2

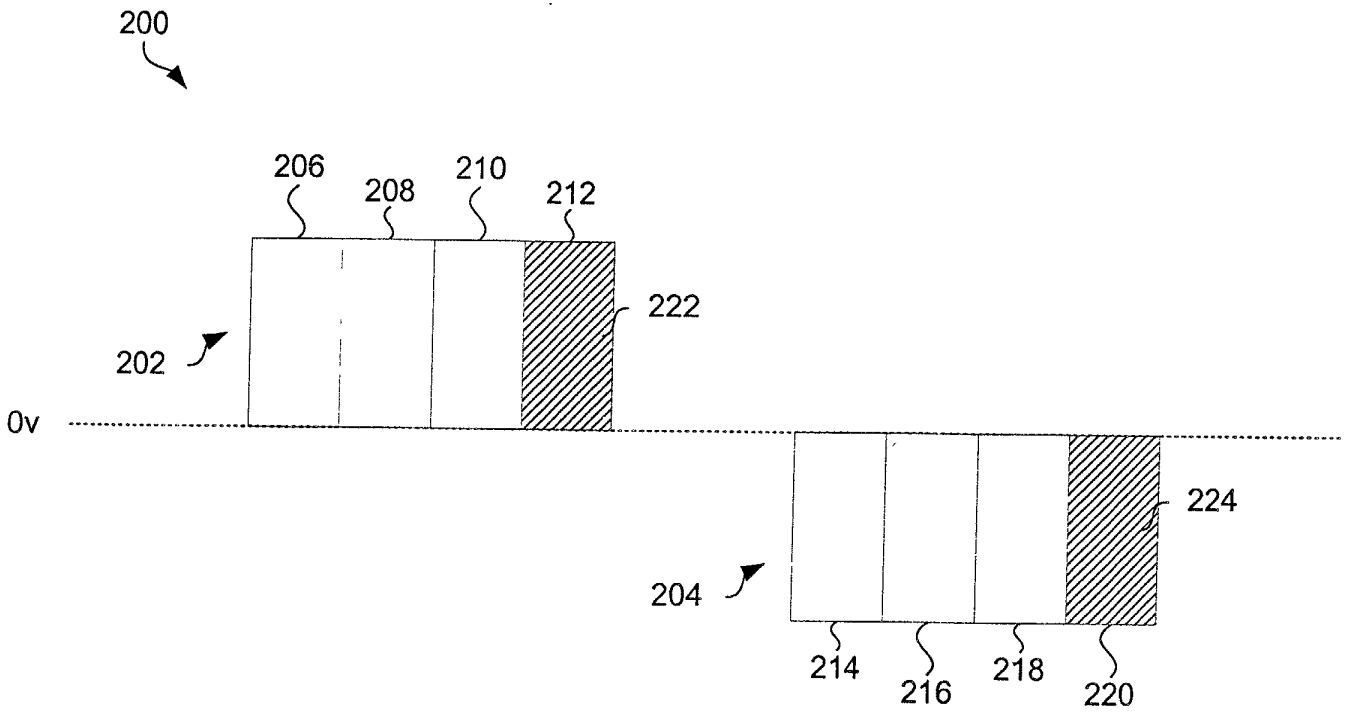

FIG. 3

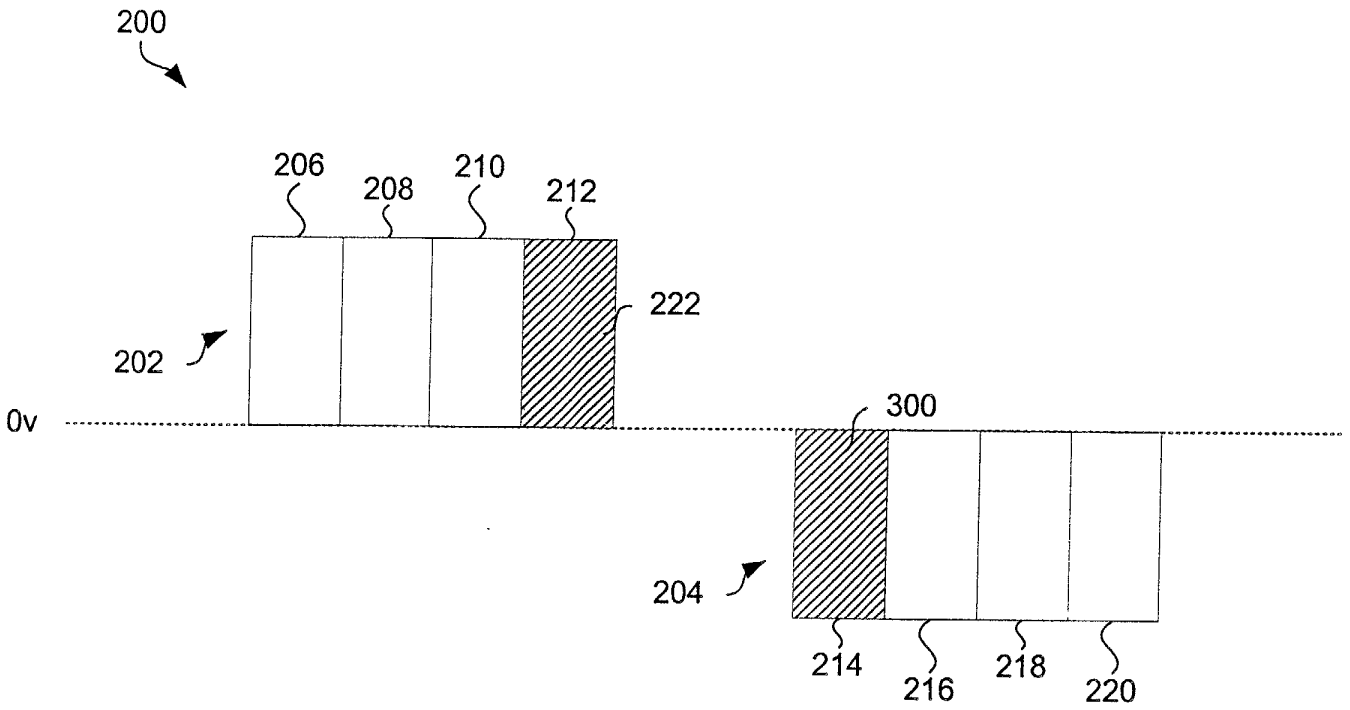

FIG. 4

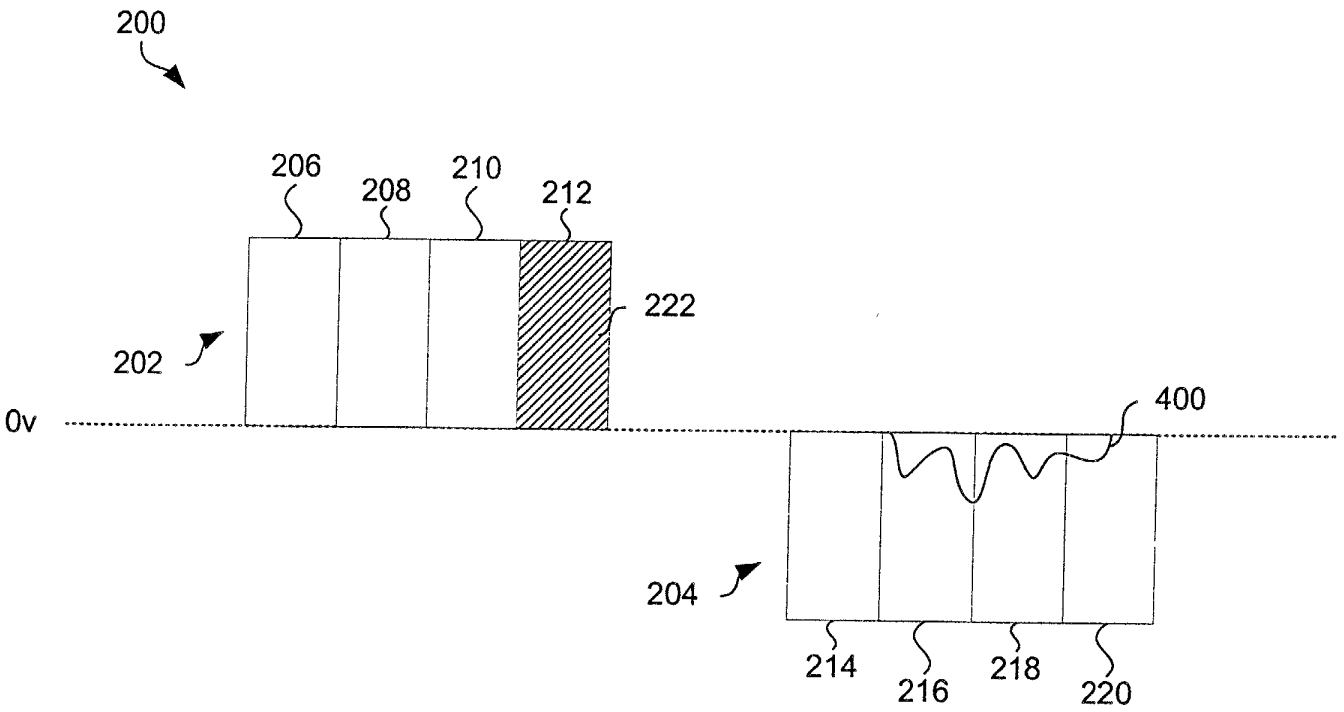

FIG. 5

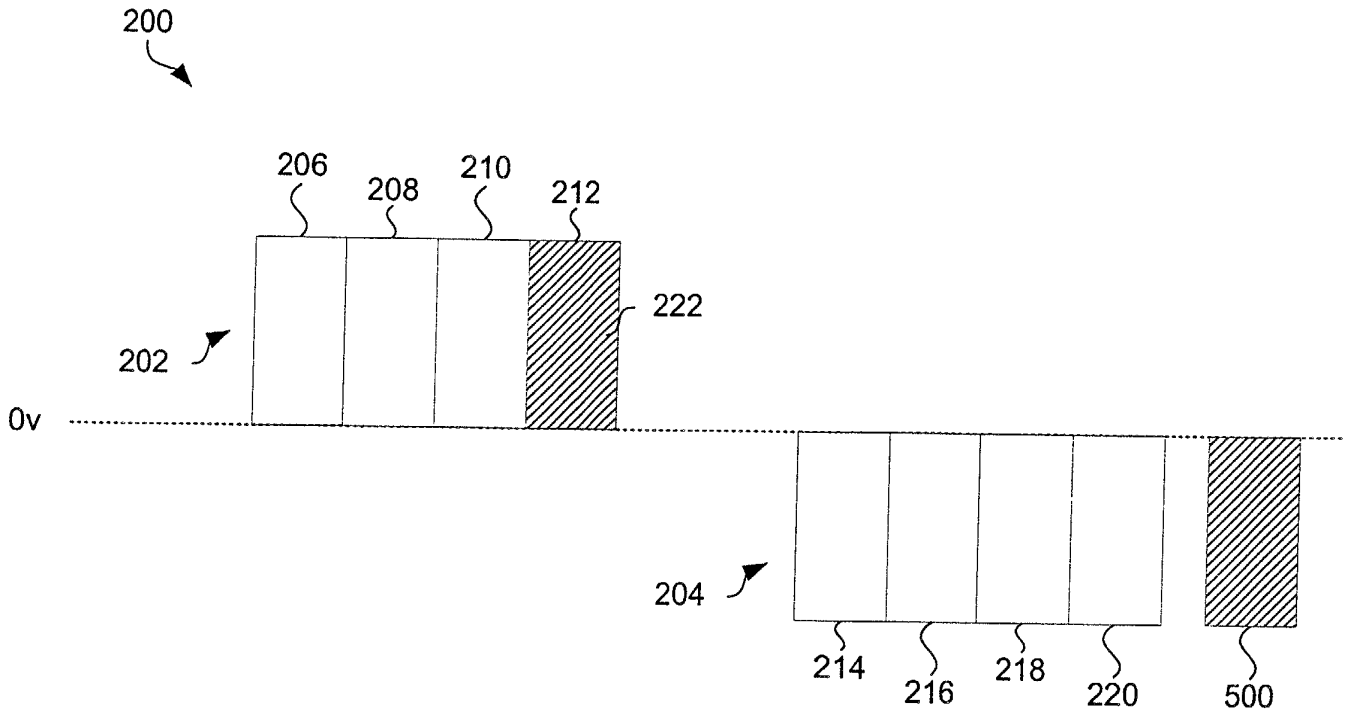

FIG. 6

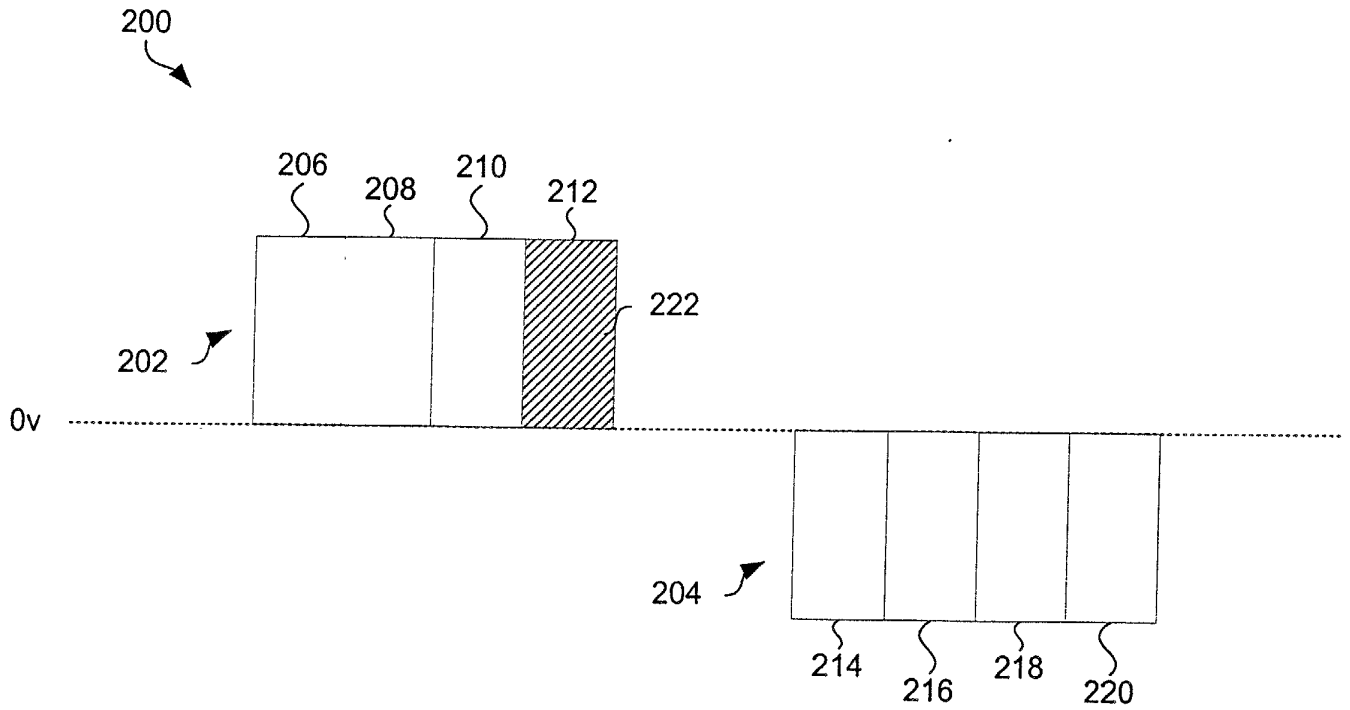

FIG. 7

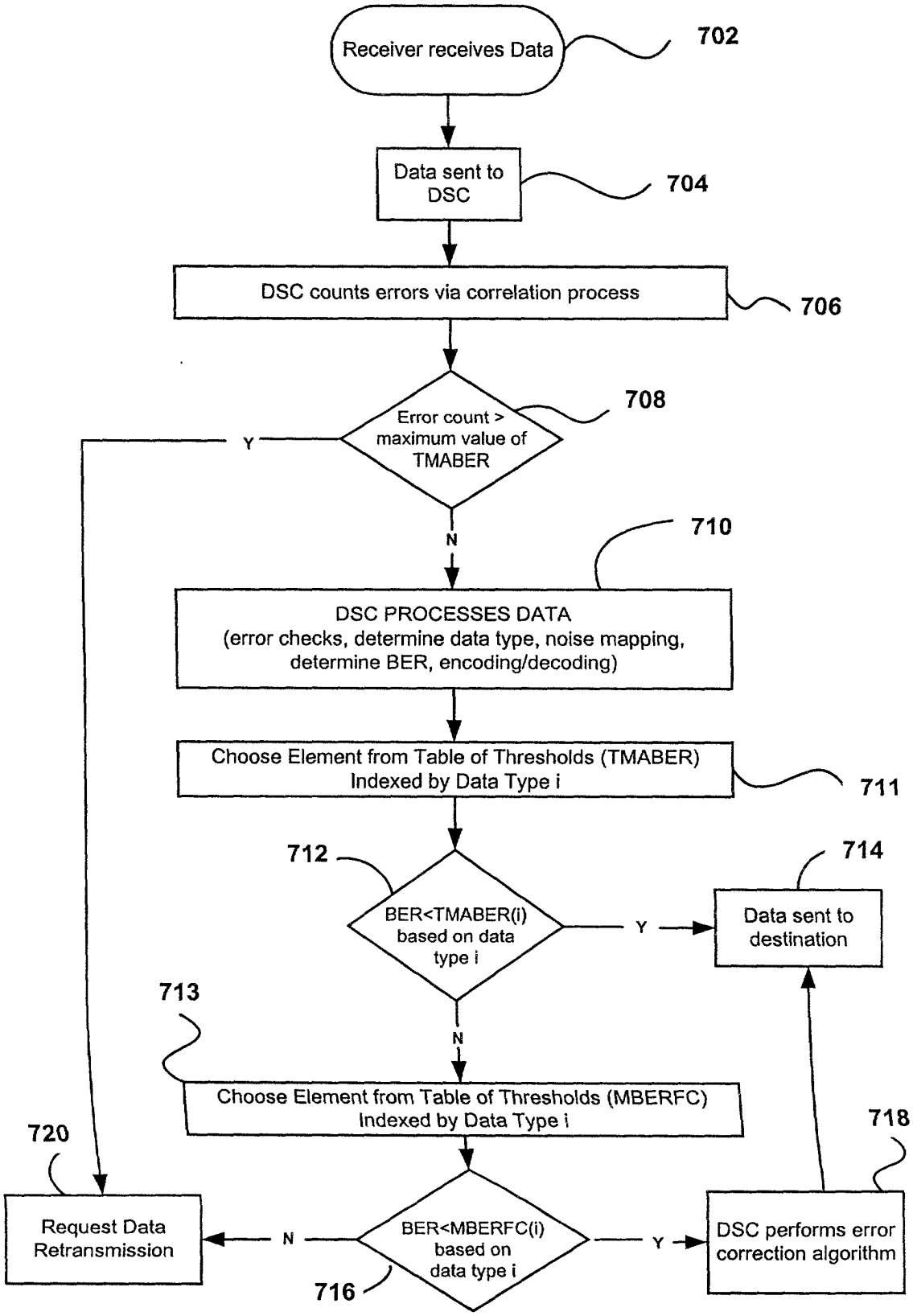
Receiver receives Data
702
Data sent to DSC
704
DSC counts errors via correlation process
706
Error count > maximum value of TMABER
708
Y
N
710
DSC PROCESSES DATA
(error checks, determine data type, noise mapping, determine BER, encoding/decoding)
Choose Element from Table of Thresholds (TMABER) Indexed by Data Type i
711
712
BER<TMABER(i) based on data type i
Y
714
Data sent to destination
713
N
Choose Element from Table of Thresholds (MBERFC) Indexed by Data Type i
720
718
Request Data Retransmission
N
BER<MBERFC(i) based on data type i
Y
DSC performs error correction algorithm
716

FIG. 8

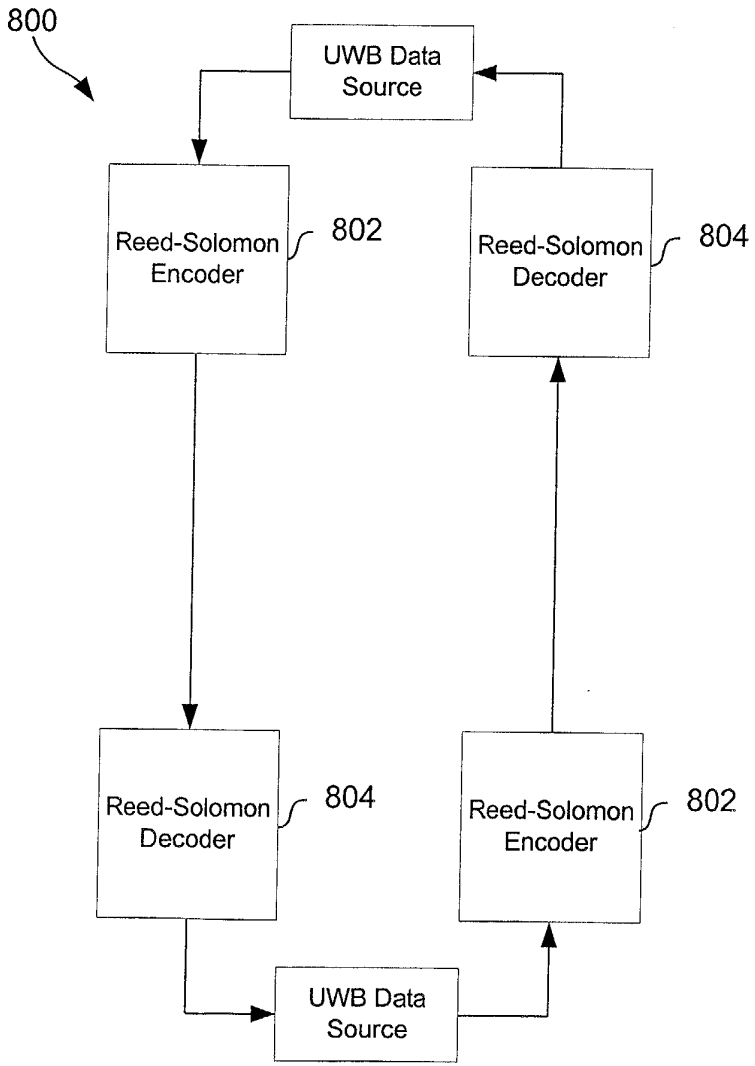
800
UWB Data Source
Reed-Solomon Encoder
802
Reed-Solomon Decoder
804
Reed-Solomon Decoder
804
Reed-Solomon Encoder
802
UWB Data Source

FIG. 9

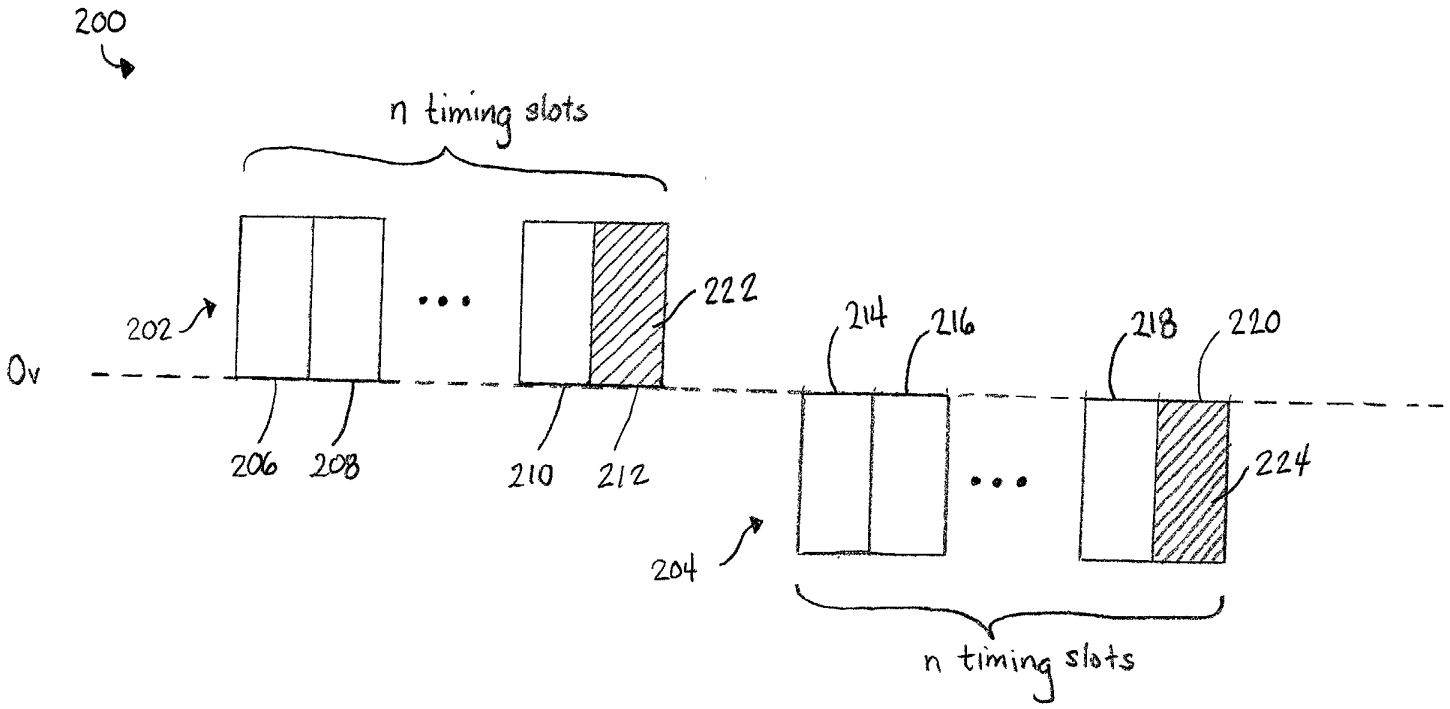
200
n timing slots
202
0v
206
208
210
212
222
214
216
218
220
224
204
n timing slots

FIG. 10